

69699
S/126/60/009/03/023/033
E032/E414

24.2200

AUTHORS: Cherchernikov, V.I. and Uchaykina, R.F.

TITLE: Investigation of Ferrites^{2/}-Garnets of Yttrium and Gadolinium Near the Ferromagnetic Curie Point^{2/}

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3, pp 457-458 (USSR)

ABSTRACT: The aim of the present work was to study the dependence of the magnetic susceptibility on temperature and magnetic field strength in the region of ferromagnetic transformation in ferrites having the structure of garnets. The magnetic susceptibility was measured by the Faraday-Sucksmith method. The figure on p 458 shows $1/\chi$ as a function of temperature T . Experiments showed that for $T \lesssim \theta_f \lesssim T$ the susceptibility χ depends not only on T but also on H . In distinction to ferromagnetic metals and ferrites having the spinel structure, the magnetization curves for garnets have a sharply defined non-linear form only below the ferromagnetic Curie point ($T \lesssim \theta_f$), ie in the ferromagnetic region. In the transition to the paramagnetic region ($T \gtrsim \theta_f$) the isothermal magnetization curves approximate to straight

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S/126/60/009/03/023/033
E032/E414Investigation of Ferrites-Garnets of Yttrium and Gadolinium Near
the Ferromagnetic Curie Point

lines and χ no longer depends on H . In other words, the transition region for ferrites and garnets is much narrower (8 to 10°) while in the remaining ferromagnetics, including ferrites, this region occupies 20 to 100°. In the above temperature interval, the dependence of the specific magnetization σ on H is given by $H = \alpha\sigma + \beta\sigma^3$, ($H = 2000$ to 10000 Oe). Experiments show that the coefficient α depends linearly on temperature, becomes zero at $T = \theta_f$ and changes sign after this point. This allowed us to measure θ_f which was found to be 562°K for both ferrites. The value of θ_f can also be obtained from the figure on p 458 if the curves are extrapolated to intersect the temperature axis as shown. The values of θ_f determined by the two methods are practically the same. The dependence of β on T is more complicated but it always remains positive. The temperature dependence of the paramagnetic susceptibility in the high temperature region (up to about 1400°K) is governed by the well known hyperbolic

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Investigation of Ferrites-Garnets of Yttrium and Gadolinium Near
the Ferromagnetic Curie Point

law of Neel (Ref 2) for the yttrium ferrite; the values
of C , σ_n , θ and $1/\chi_0$ were found to be 58, 1550,
570°K and 30.5 respectively. There are 1 figure and
2 references, 1 of which is Soviet and 1 French.

This is an abridged translation.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova
(Moscow State University imeni M.V.Lomonosov)

SUBMITTED: March 23, 1959

Card 3/3

CHERCHERNIKOV, V.I.; AFONINA, L.N.

Paramagnetic susceptibility of certain ordered nickel-base alloys.
Fiz. met. i metalloved. 17 no.2:305-308 F '64. (MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

KAMENSKIY, I.N.; CHERCHES, B.Z.; KRYUCHKOVA, A.P.; RASSOLENKO, L.I.

Use of waste material from chlortetracycline production for stockbreeding. Med.prom. 13 no.1:6-10 Ja '59. (MIRA 12:10)

1. Moskovskiy zavod meditsinskikh preparatov No.1.
(AUREOMYCIN) (FEEDING AND FEEDING STUFFS)

ORLOVA, N.V.; ZAITSEVA, Z.M.; KHOKHLOV, A.S.; CHERCHES, B.Z.

Some physiological characteristics of inactive mutants of
Act. rimosus, an oxytetracycline producer. Antibiotiki 6
no.7:629-635 JI '61. (MIRA 15:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov
i Institut khimii prirodnkh sovedineniy AN SSSR.
(OXYTETRACYCLINE) (ACTINOMYCES)

CHERCHES, B.A., inzh.

Refuse sorting station. Nov. tekhn. zhil.-kom. khoz.: Blagoustr.
gor. [no.1]:66-74 '61. (MIRA 18:5)

CHERCHES, F. A.

Zamyatin, N., Nalibotskiy, S., and Cherches, F. "The selction of hons on the principle of stimulating the development of the progeny", Izvestiya Akad. nauk BSSR, 1949, No. 2, p. 109-20, -bibliog: 9 items.

SO: U-411, 17 July 53, (Letopis' Zhurnal 'nykh Statey, No. 20, 1949).

1. NAGORSKAYA, YE. D.; CHERCHES, F. A.
2. USSR (600)
4. Swine--Feeding and Feeding Stuffs
7. Semi-lard method for fattening pigs, Sots. zhiv., 15, No. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

CHERCHAS, I.A.

Let us broaden efficiency promotion work. Izobr. v SSSR 3 no.3:42-43
Mr '58. (MIRA 11:3)

1. Glavnyy inzhener Minskoy kozhgalantereynoy fabriki.
(Minsk--Leather industry)

| CHECHES, Kh.A. | | PROCESS AND PROPERTIES INDEX | |
|---|--|------------------------------|--|
| <p>Refraction of periodic precipitations of silver dichromate in stretched gelatin. Kh. A. Chechins. <i>Colloid J.</i> (U.S.S.R.) 4, 607-12 (1962).—A gelatin layer was put on a rubber film, and a part of the film with the gelatin stretched. At the boundary between the stretched and the unstretched parts a refraction of $\text{Ag}_2\text{Cr}_2\text{O}_7$ rings took place (cf. Nishizawa and Runtan, <i>C. A. B.</i>, 7012²). The law of refraction was confirmed. The index of refraction, i. e., the ratio of the volumes in unstretched and stretched gelatin, regularly decreases with stretching. J. J. B.</p> | | <p>2</p> | |
| <p>ASB-514 METALLURGICAL LITERATURE CLASSIFICATION</p> | | | |
| <p>10000 02</p> | | <p>10000 02</p> | |

CHERCHES, Kh. A.

KARATKOU, K.N.; CHERCHES, Kh.A.

Catalytic polymerization and isomerism of terpene hydrocarbons.

Vestsi AN BSSR no.5:109-120 S-O '52.

(MIRA 7:8)

(Terpenes) (Polymers and polymerization) (Isomerism)

CHERCHES R.R.A.

U S S R .

Composition of turpentine from pine rosin produced in B.S.S.R. K. N. Korotkov and Kh. A. Chereches. *Izvest. Akad. Nauk Belorus. S.S.R.* 1953, No. 4, 51-5; *Referat. Zhur. Khim.* 1954, No. 33, 477. In the 2 samples studied the main components were: 1- α -pinene (27.8-30.0%), an unidentified hydrocarbon coming over after it, β -pinene (30.5-38.4%), a mixt. of limonene and dipentene (14.4-15.0%), alcs. (up to 2.7%), and higher-boiling fractions. In the studied samples 3-carene was not found.

M. Hosh

CHERCHES, Nr. 4.

KOROTKOV, K.N.; CHERCHES, Kh.A., kandidat khimicheskikh nauk

Composition of turpentine produced from stumps from the surface of
swamps. Izv. AN BSSR no.1:153-161 Ja-F'55. (MIRA 8:10)

1. Deystvitel'nyy chlen Akademii nauk BSSR (for Korotkov)
(Turpentine)

CHERCHES, Kh. A.

USSR/Chemical Technology. Chemical Products and Their Application -- Wood chemistry products. Cellulose and its manufacture. Paper, I-23

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6247

Author: Bardyshev, I. I., Ukhova, L. I., Cherches, Kh. A.

Institution: Academy of Sciences Belorussian SSR

Title: Composition of Turpentine from Siberian Larch

Original

Publication: Vestsi AN BSSR, Ser. fiz.-tekhn. n., Izv. AN BSSR, ser. fiz.-tekhn. n., 1956, No 1, 125-126

Abstract: Turpentine from Siberian larch has been found to contain 1-alpha-pinene, 1-beta-pinene and d-delta³-carene, that is the same components which are found in turpentine from Dauriskaya larch.

Card 1/1

Cherches, N. 11.

Preparation and properties of colophony from the resin of common larch. 1. I. Barayshev and Kh. Cherches. *Vestn Akad. Nauk Belorus. S.S.R., Ser. Fiz.-Tehn. Nauk* 1956, No. 2, 141-5.—Tapped larch trees exuded from May to Sept. 600-1000 g. resin (I)/tree. The I, contg. 12.5% turpentine (II), was dissolved in Et₂O, the soln. was filtered through a Buchner funnel, heated on a water bath to remove Et₂O, steam distd. to remove II, and the residual mass was then cooked for a while at 165° with the final 15 min. at 15 mm. Hg to give 76% yield of the larch colophony (III). Another III prepn. was made by dissolving I in II to the I concn. of 35%, adding 50 g. NaCl and 200 ml. superphosphate ext./kg. I (the P ext. was made by dissolving 40 g. superphosphate in 200 ml. H₂O at 50° and filtering off the liquid phase), steam-melting the obtained mixt. for 30 min., removing wastes by filtering, decanting the supernatant formed when the melted mixt. stood at 90° for 8 hrs., and removing II by steam distn. at 170°: yield 75% III. The III preps. were of the following characteristics: acid no. 149 and 147, sapon. no. 9.9 and 10, softening temp. 68 and 65°, and moisture 0.2 and 0.2, ash 0.03 and 0.04, nonsapong. fraction 18.2 and 17.2, and mech. impurities 0.04 and 0.08% for the 1st and 2nd prepn., resp. Pine III differs from the larch III preps. only by its greater acid no. (150-168) and its smaller nonsapong. fraction (7.5-10.5%). 18 references.

E. Wierbicki

Cherches, Kh. A.

Abietic acid, a primary acid from *Picea excelsa* resin.
I. I. Bardyshev and Kh. A. Cherches. *Zhur. Priklad. Khim.*

2

29, 1838-9(1950).—Extn. of the resin with Me₂CO resulted in direct isolation of abietic acid (I) which was characterized, thus, as a primary constituent of the resin. I is isolated as bornylamine salt.

G. M. Kosolapov

Math

CHEKCHES, KH. N.

USSR/Chemical Technology - Chemical Products; and Their I-9
Application. Wood Chemistry Products. Hydrolysis Industry

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2664

Author : Cherches, Kh. N., Bardyshev, I.I.

Inst : Academy of Sciences Belorussian SSR

Title : Isolation of Abietic Acid from a Mixture of Isomerized
Resin Acids of the Oleoresin of Common Spruce.

Orig Pub : Izv. AN BSSR, Ser. fiz.-tekhn. n., 1957, No 1, 23-27

Abstract : Abietic acid (I) has been isolated in a sufficiently high
degree of purity by recrystallization of bornylamine abie-
tate. The latter was obtained from isomerized resin acids
of spruce oleoresin. It is shown that pure preparations
of I are most conveniently stored in the form of bornyla-
mine salt. I kept in the form of this salt for 15 years
did not change its initial properties. A study has been

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CHERCHES, KH. A.

AUTHORS: Bardyshev, I. I., and Cherches, Kh. A.

20-6-18/42

TITLE: Dehydroabietic Acid and Palustric Acid, as Components of the Spruce Resin From Picea excelsa Link (Degidroabiyetinovaya i palyustrovaya kisloty-sostavnyye chasti zhivitsy yeli obyknovennoy (Picea excelsa Link)).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 6, pp. 959-960 (USSR).

ABSTRACT: Hitherto levu-pinar-, dextro-pinar ("pimarovaya") and α -sabin-acid have been found (reference 1) within the acid component of the spruce resin (Picea excelsa), whilst the existence of abiestic acid has been mentioned first only just (reference 2). In the submitted investigation it has been proved that the dehydroabiestic acid and the palustric acid also exist in the resin of this tree. The latter acid has been observed in the resin of the pitch pine (Pinus palustris) and of the pine (Pinus silvestris), whilst the dehydroabiestic acid has been observed in the pitch pine (references 3-5).
Experimental part: The resin has been obtained in Belorussia from the standing stock of pine-woods and the resin acids have been obtained from fresh resin by crystallization out of alcohol. The isolation methods, exploitation and coefficients of the specific absorption of both acids mentioned in the title (figures 1 and 2) af-

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Dehydroabietic Acid and Palustric Acid, as Components of the 20-6-18/42
Spruce Resin From Picea excelsa Link.

ter the reaction with and without maleic aldehyde are recorded.
There are 2 figures, and 5 references, 3 of which are Slavic.

ASSOCIATION: Institute for Chemistry AN, Belorussian SSR (Institut khimii
Akademii nauk BSSR).

PRESENTED: June 7, 1957, by B. A. Arbuzov, Academician.

SUBMITTED: June 2, 1957.

AVAILABLE: Library of Congress.

Card 2/2

CHERCHES, Kh. A.

"Nature of Sapinic Acid Isolated from the Resin of Norway Spruce"

Sbornik nauchnykh rabot, vyp. 6, (Collection of Scientific Works of the Institute of Chemistry, Belorussian SSR, Academy of Sciences, No. 6) Minsk, Izd-vo AN Belorusskoy SSR, 1958, 271 pp.

~~CHERCHES. No. 4~~

Nature of α -sapinic acid liberated from the resin of Norway spruce.
(Picea Excelsa Link). Sbor. nauch. rab. Inst. khim. AN BSSR no.6:266-269
'58. (MIRA 11:11)

(Sapinic acid)

(Spruce)

CHERCHES, Kh.A.

BARDYSHEV, I.I.; CHERCHES, Kh.A.; KAMYSHNYY, A.A.; KOLOSKO, S.I.;
VOLKOVA, N.Ie.

Commercial production of colophony from spruce oleoresin.

Gidroliz. i lesokhim. prom. 11 no.1:22-23 '58. (MIRA 11:2)

1. Institut khimii AN BSSR (for Bardyshev, Cherches) 2. Borisovskiy
lesokhimicheskiy zavod (for Kamyshnyy) 3. Upravleniye lesnoy
promyshlennosti Belorusskogo Sovnarkhosa (for Kolosko) 4. Dobrushskaya
bunashnaya fabrika (for Volkova).

(Gums and resins)

(Spruce)

CHERCHES Kh. A.

BARDYSHEV, I.I.; CHERCHES, Kh.A.; UKHOVA, L.I.

New synthesis of levopimaric acid from a mixture of resinous acids.
Zhur. prikl. khim. 31 no.3:512-514 Mr '58. (MIRA 11:4)
(Levopimaric acid) (Gums and resins)

BARDYSHEV, I.I.; ~~CHERCHES, E.A.~~

Resin acids of Crimean pine resins (*Pinus pallasiana* Lamb.).
Zhur. prikl. khim. 31 no.7:1122-1124 J1 '58. (MIRA 11:9)
(Resin acids)

BARDYSHEV, I.I.; CHERCHES, Kh.A.

Neobietic acid - primary acid of an ordinary pine soft resin (*Picea
Excelsa* Link.). Zhur. prikl. khim. 31 no.8:1276-1277 Ag '58.
(MIRA 11:10)

1. Institut khimii AN BSSR.
(Gums and resins) (Neobietic acid)

AUTHORS: Bardyshev, I. I., Cherches, Kh. A. SOV/20-120-5-26/67

TITLE: Isodextropimaric Acid, a Component of Gulipot Resinolic Acids From Pinus Sibirica (Rupr.) Mayr (Izodekstropimarovaya kislota - komponent smolyanykh kislot zhivitsy kedra sibirskogo Pinus sibirica (Rupr.) Mayr)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 5, pp.1025-1026 (USSR)

ABSTRACT: Systematic work was carried out by V. V. Shkatelov (Ref 1) and B. A. Arbuzov (Ref 2) on the resinolic acids of the resin of conifers. Several acids were found (Refs 3-9). α - and β -sapinic acid which have hitherto been assumed to be the main ingredients of the acid part of the resin of Pinus silvestris and of Picea excelsa turned out to be not individual acids, but a mixture of acids like lewipimaric-, abietinic-, ~~neobietinic~~-, palusteric-, and dextropimaric acid (Ref 8). The acid mentioned in the title (VII) differs from the dextropimaric acid (VI) merely by a deviating position of the substituents in C₇. It was separated first from the resin of the American Pinus palustris (Ref 11). In the balsams of the conifers of the USSR it has hitherto not been

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SOV/20-120-5-26/67
Isodextropimaric acid, a Component of Galipot Resinolic Acids From Pinus
Sibirica (Rupr.) Mayr

found. By means of the present paper was proved that the acid mentioned in the title forms beside the abietic acid an ingredient of the acid part of the resin of Pinus sibirica. There are 2 figures and 12 references, 11 of which are Soviet.

ASSOCIATION: Institut khimii Akademii nauk BSSR (Institute of Chemistry, AS Belorussian SSR)

PRESENTED: December 30, 1957, by B. A. Arbuzov, Member, Academy of Sciences, USSR

SUBMITTED: December 28, 1957

1. Acids--Sources 2. Acids--Separation 3. Pinus Sibirica
--Processing

Card 2/2

BARDYSHEV, I.I.; CHERCHES, Kh.A.

Chemical composition of the essential oil of the common spruce.
Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no. 7:96-102 '59.
(Essences and essential oils) (Spruce) (MIRA 14:4)

BARDYSHEV, I.I.; CHERCHES, Kh.A.; KOVTUNENKO, Z.Yu.; KOKHANSKAYA, Zh.F.

Chromatographic analysis of resin acids in crude turpentine from
Scotch pine (*Pinus silvestris* L.). Dokl. AN BSSR 4 no.10:421-423
'60. (MIRA 13:9)

1. Institut fiziko-organicheskoy khimii AN BSSR.
(Resin acids)

s/080/60/033/04/23/045

AUTHORS: Bardyshev, I.I., Cherches, Kh.A., Kokhanskaya, Zh.F. ✓

TITLE: On the Nature of Resin Acids and the Properties of Colophony From Soft Resin of Pinus Massoniana

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 884 - 890

TEXT: The chemical composition of the resin acids of Pinus Massiniana growing in China was investigated. In the production of colophony and turpentine materials China hold the third place behind the USA and the USSR. Pinus Massoniana is the main source of these materials. The analysis has shown that the soft resin contained 18% of turpentine, 9% of neutral oils which are distilled very difficultly with live steam. 73% of acidic fractions and insignificant quantities of dirt and water. The following resin acids were discovered: levopimaric 22%, abietic 20%, neoabietic and "palyustrovaya" 25%, dextropimaric 20%, dehydro- and dihydroabietic 3 - 4% and 9 - 10% fatty acids. The physico-chemical characteristics are shown in a table. The properties of a laboratory sample of colophony correspond to the requirements of the State Standard for high-quality colophony from soft resin. Thanks are expressed to the head of the department of

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On the Nature of Resin Acids and the Properties of Colophony From Soft Resin of Pinus Massoniana

chemistry of the Pekinskiy lesnoy institut (Peking Wood Institute) for supplying soft resin for investigation.

There are: 7 graphs, 2 tables and 22 references, 20 of which are Soviet and 2 American.

ASSOCIATION: Institut fiziko-organicheskoy khimii AN BSSR (Institute of Physical-Organic Chemistry of the AS BSSR)

SUBMITTED: June 5, 1959

Card 2/2

CHERCHES, Kh.A.; BARDYSHEV, I.I.; TKACHENKO, O.T.

Resin acids of the oleoresin of the spruce *Picea ajanensis* Fisch.
Zhur.prikl.khim. 33 no.10:2381-2384 0 '60. (MIRA 14:5)
(Resin acids) (Spruce)

BARDYSHEV, I.I.; CHERCHES, Kh.A.; KOKHANSKAYA, Zh.F.

Nature of tar acids from resins of the Siberian pine (*Pinus sibirica* Rupr. Mayr.). Zhur. prikl. khim. 34 no.5:1147-1151 My '61. (MIRA 16:8)

1. Institut fiziko-organicheskoy khimii AN BSSR.
(Tar acids) (Pine)

BARDYSHEV, I.I. [Bardyshau, I.I.]; CHERCHES, Kh.A. [Cherchas, Kh.A.];
MEYARSON, L.A.

Resin acids. Vestsi AN BSSR.Ser.fiz.-tekhn. no.1:56-63 '62.
(MIRA 16:9)
(Resin acids)

CHERCHES, Kh.A.; BARDYSHEV, I.I.; REKUNOVA, E.A.

Chemical composition of ethereal oil from common pine (*Pinus silvestris*). Zhur.prikl.khim. 35 no.1:209-212 Ja '62.

(MIRA 15:1)

1. Institut fiziko-organicheskoy khimii AN BSSR.
(Essences and essential oils)

BARDYSHEV, I.I.; TKACHENKO, O.T.; CHERCHES, Kh.A.

Resin acids. Part 4: Chemical composition of resin obtained
from pine (*Pinus silvestris*) oleoresin. Zhur.ob.khim. 32
no.3:999-1001 Mr '62. (MIRA 15:3)

1. Institut fiziko-organicheskoy khimii AN Belorusskoy SSR.
(Resin acids)

PRIMA, A.M.; MAKAREVICH, N.I.; CHERCHES, Kh.A.; BARDYSHEV, I.I.

Study of the molecular association of resin acids by infrared spectroscopy methods. Izv. AN SSSR.Ser.fiz. 26 no.10:1313-1316
O '62. (MIRA 15:10)

1. Institut fiziki AN BSSR i Institut fiziko-organicheskoy khimii AN BSSR.

(Resin acids-Spectra) (Molecular association)

PRIMA, A.M.; MAKAREVICH, N.I.; BARDYSHEV, I.I.; CHERCHES, Kh.A.

Infrared spectra of resin acids. Zhur. fiz. khim. 36 no.3:620-
624 Mr '62. (MIRA 17:8)

1. Institut fiziki AN BSSR i Institut fiziko-organicheskoy khimii
AN BSSR.

BARDYSHEV, I.I.; CHERCHES, Kh.A.; MEYERSON, L.A.

Quantitative analysis of resin acids. Zhur.anal.khim. 18 no.7:
895-899 J1 '63. (MIRA 16:11)

1. Institute of Physico-Organic Chemistry, Academy of Sciences,
Byelorussian S.S.R., Minsk.

BARDYSHEV, I.I.; CHERCHES, Kh.A.; AKINCHITS, Ye.A.; BULGAKOV, A.N.

Quantitative composition of the tar acids of pine and fir oleoresin.
Gidroliz. i lesokhim. 18 no.2:10-11 '65.

(MIRA 18:5)

1. Institut fiziko-organicheskoy khimii AN BSSR.

BARDYSHEV, I.I.; TRACHENKO, O.T.; CHERCHES, Kh.A.

Quantitative composition of tar acids of pine extraction
resin. Zhur.prikl.khim. 36 no.9:2049-2053 S '65.

(MIRA 18:11)

1. Institut fiziko-organicheskoy khimii AN BSSR.

CHERCHES, Kh.A.; BARDYSHEV, I.I.; BULGAKOV, A.N.; AKINCHITS, Ye.A.

Composition of resin oils of oleoresin from Aleppo and
Crimean pines and their hydrides. Zhur.prikl.khim. 38
no.11:2624-2627 N '65.

(MIRA 18:12)

1. Submitted October 16, 1963.

CHERCHES. N.A., referent.

Improving equipment in the hosiery industry (from "Hosiery Times"
no. 329, 1956). Leg.prom. 17 no.6:3 of cover Je '57. (MLRA 10:8)
(Great Britain--Hosiery industry)

CHERCHES, Ye. A.

7(3), 3(4), 24(7)

ARTICLES

Borisovich, B. A., Makarovich, B. I., Prizan, A. B.,
Buryakov, I. M., Charchov, Ye. A.

907/48-25-10-18/39

TITLES:

Identification of Resin Acids by Means of Their Infrared
Spectra

FBIOMICAL:

Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1959,
Vol. 23, No. 10, pp. 1215-1221 (USSR)

ABSTRACT:

Coniferous resins, which essentially contain terpene hydrocarbons and resin acids, have many derivatives. As the chemical analysis and the separation of the individual acids becomes considerable difficulties in a mixture of pure resin acids, the infrared spectroscopic analysis of these substances is of particularly great importance. Hitherto, however, not many resin acids have been investigated. In this way, in the present paper the authors give the results obtained by infrared spectroscopy of such resin acids, the structural formulas are mentioned: abietic acid (I), leopimaric acid (II), dactyloplimic acid (III), and pimaric acid (IV). Solutions of these acids in CCl_4 as well as pressed samples of acid potassium bromide were investigated by means of a IKS-11-type

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spectrometer. The spectra of the solution and the pressed sample show practically no difference whatever. The spectra obtained are shown by four diagrams. Their particular features of the bands of the CH_2 , CH_3 , and CH groups, the spectra of I, II, and IV are very similar, and only III deviates, which is due to the existence of the group $-CH=CH-$. The frequency of the bands corresponding to the groups $C=O$ and $C=C$ (1685 and 1282 cm^{-1}) depends only to a small extent on the structure of the remaining acid molecule; the intensity of the bands, however, differs considerably according to the individual acids. Within the range of the double bond $C=C$ a band was found at 1644 cm^{-1} in I, II, and IV, and one was found in III at 1631 cm^{-1} as well as one at 1409 cm^{-1} . In IV the band (1502 cm^{-1}), which is characteristic of the benzene ring, was found. The number of intense bands was also found in the range 800 to 600 cm^{-1} : 993 (I), 1007 and 1024 (II), 921 (IV) and 909 cm^{-1} (III). There are 1 figure and 1 Soviet reference.

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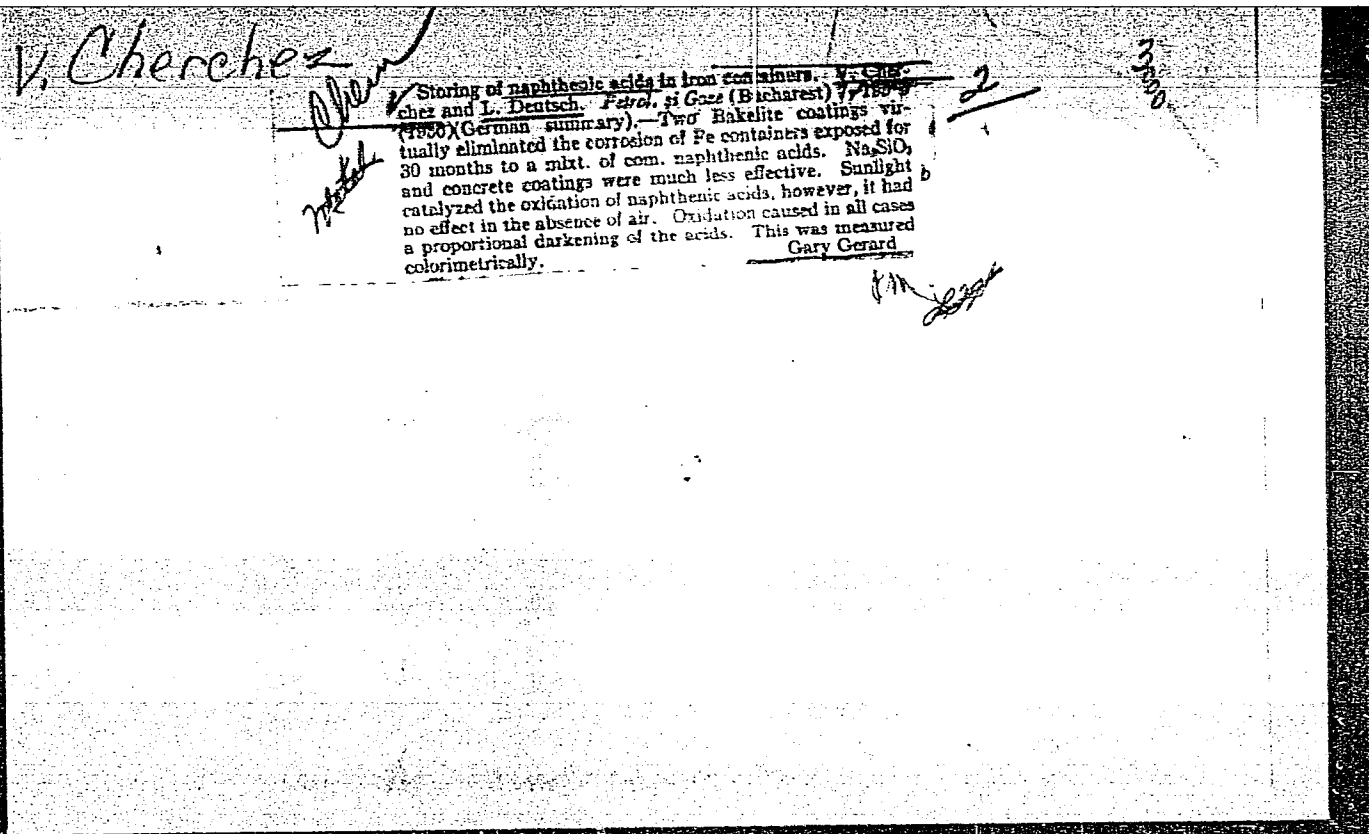
GEROTA, D.; CHERCHEZ, E.

Indications for drainage of the biliary passages. Romanian M. Rev. 2
no.2:79-81 Apr-June 58.

(BILIARY TRACT, surg.
drainage, indic.)

(DRAINAGE
of biliary tract, indic.)

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|--|-----------|--------------------|-----------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| CHERCHÉZ, F. | | 1ST AND 2ND DEGREE | | 100 AND 214 (1951) | | | | | | | | | | | | | |
| PROCESSES AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | |
| CA | | | | | | | | | | | | | | | | | |
| <p>Process for improving the octane value of gasolines. <i>Th. Cherchez. Mon. pétrole remain 1946, 230-1;</i> <i>Chimie & Industrie 57, 500 (1947).</i>—The octane value of a gasoline can be raised by: removal of S compds., reform- ing, cracking. S is removed by extn. (anisole, NaOH, and MeOH process) or by catalytic conversion of S into H₂S (Gray process). Reforming is effected by isomerization at 345-530° under pressure (isofining). A. P.-C.</p> | | | | | | | | | | | | | | | | | |
| ASO-5LA METALLURGICAL LITERATURE CLASSIFICATION | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>100000 01</td> <td>100000 01</td> <td>100000 01</td> <td>100000 01</td> <td>100000 01</td> <td>100000 01</td> </tr> <tr> <td>100000 01</td> <td>100000 01</td> <td>100000 01</td> <td>100000 01</td> <td>100000 01</td> <td>100000 01</td> </tr> </table> | | | | | | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 |
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| 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | 100000 01 | | | | | | | | | | | | |



VODENICHAROV, D.G.; CHERCHIAN-KAKHANIAN, T.

Fossil diatoms from the diatomites near the village of
Batkostsi, Sofia region. Izv.inst.bot. BAN 10:23-36 '62

CHERCHIK, I.A. PHASE I BOOK EXPLOITATION 565

Belov, A.N., Shatov, S.G., Khartsiyev, N.A., Grab, I.I., and
Cherchik, I.A.

Vosstanovleniye detaley mashin termitnoy naplavy; iz opyta avto-remontnogo zavoda (Rehabilitation of Machine Parts by Thermit Resurfacing; Practice of an Automobile Repair Plant) Leningrad, 1956. 15 p. (Series: Leningradskiy dom nauchno-tekhnicheskoy propagandy. Informatsionno-tekhnicheskii listok, no. 15. Svarka i payka metallov) 6,000 copies printed.

Sponsoring Agencies: Leningradskiy dom nauchno-tekhnicheskoy propagandy, and Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy.

Ed.: Ryzhik, Z.M., Engineer; Tech. Ed.: Freger, D.P.

PURPOSE: This pamphlet is intended for welding personnel employing thermit processes.

Card 1/2

Rehabilitation of Machine Parts (Cont.)

565

COVERAGE: The pamphlet presents a brief description of the thermit process adapted to resurfacing of worn out machine parts. No personalities are mentioned. There are no references.

TABLE OF
CONTENTS:

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| Accessories for Thermit Deposition | 1 |
| Rehabilitation of the Driving Wheel of a Caterpillar Tractor | 3 |
| Rehabilitation of the ZIS-150 Automobile Reverse Gear | 4 |
| Pouring Processes | 6 |
| Chemical Composition, Mechanical Properties of the Layer Deposited on the Gear | 8 |
| Economic Effect | 9 |
| Appendixes | 11 |
| Calculating thermit mixture | 12 |
| Required quantity of ferroalloys | 16 |
| AVAILABLE: Library of Congress | |
| Card 2/2 | |

JG/ad
9-10-58

CHERCHOP'YAN, G. M.

CHERCHOP'YAN, G. M. "Experience in treating fungus infections of the capillary portion of the skin of monkeys without X-ray epilation", Trudy Sukhuma. biol. stantsii Akad. med. nauk SSSR, Vol. I, 1949, p. 292-94.

SO: U-4393, 19 August 53, (Letopis 'Zhurnal 'nykh Statey', No. 22, 1949).

CHERCHUK, YA. P.

USSR/Miscellaneous - Book review

Card 1/1 : Pub. 61 - 22/23

Authors : Cherchuk, Ya. P.

Title : Method of metal standardization in foundry industry

Periodical : Lit. proizv. 4, 31-33, July 1954

Abstract : Critical review is presented of a report by A. S. Zverev entitled, "Foundry Industry", published in 1953. The book lists the numerous disadvantages of the present method of metal standardization and introduces its own version of proper and economical standardization of metal in foundry industry. Table.

Institution : ...

Submitted : ...

ROMANIA

CHERCIU, I., Maj, Dr and GUTU, M., Laboratory worker [affiliation not given]

"The Value of Culture Media of Vegetable Origin (Phaseolus vulgaris) for Bacteriological Diagnosis under Field and Campaign Conditions. Note III."

Bucharest, Revista Sanitara Militara, Vol 59, No 3, May-Jun 63, pp 509-520.

Abstract: Describes in detail three techniques for the preparation of vegetable culture media: 1. Riakovski seed broth; 2. Rausching peptic digestion; 3. Twenty-four hour tryptic digestion.

Includes 3 tables, 1 figure and 13 references, of which 2 English-language, 2 German and 9 Rumanian.

1/1

CHERCIU, I., ing.

Continuous line for the manufacture of Sibiu salami set up
at the Industria Alimentara Enterprise in Sinaia. Ind alim
anim 11 no.1:20-25 Ja'63

1. Fabrica Industria Alimentara, Sinaia.

L 63405-65

ACCESSION NR: AP5023252

RU/0012/64/000/005/0837/0844

AUTHOR: Cherciu, I. (Doctor, Major)

TITLE: Value of culture media of vegetable origin (made of *Phaseolus vulgaris*) for bacteriological diagnosis under field and battle conditions. Note IV. Study of the modifications undergone by germs on vegetable media

SOURCE: Revista sanitara militara, no. 5, 1964, 837-844

TOPIC TAGS: bacteriology

ABSTRACT: Culture media prepared by making a seed broth (Ria-kovschi method), peptic digestion (Rausching method) and tryptic digestion for 24 hours were tested for various characteristics, including productivity, toxigenesis, pigmentogenesis, tinctorial modification, fermentative properties, agglutination with specific sera, morphologic character and virulence of germs grown on them. It was found that the vegetable tryptic hydrolizate did not cause any modifications in the germs studied that would interfere with bacteriologic tests, and was a better medium than peptonated meat broth.

1/2

L 63405-65

ACCESSION NR: AP5023252

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: LS

NR REF SOV: 001

OTHER: 010

JPRS

dm
2/2

RUMANIA

CHERCIU, I., Dr, Maj, and MACOVESCU, Al., Dr, Col [affiliation not given]

"The Disinfection of Potable Water in Inhabited Areas with Small Water Supply Centers."

Bucharest, Revista Sanitara Militara, Vol 62, No 1, Jan-Feb 66, pp 161-168.

Abstract: The authors describe three types of chlorination apparatus suitable for small water purification stations. The devices, which are simple to construct, are of the Ciurdareanu -Gross, Strauss-Gross-Ciurdareanu, and Herscovici-Cherciu types.

Includes 5 figures and 8 Rumanian references. -- Manuscript submitted 3 April 1964.

1/1

- 191 -

RUMANIA

MACOVESCU, Al., Colonel Medical Corps; CHERCIU, I., Major, Medical Corps, Dr. in Medical Sciences; and GORDAN, G., Major, Medical Corps.

"A New Method for Carrying Out Antibigrams on the Microbial Flora in the Sputum"

Bucharest, Revista Sanitara Militara, Vol. 62, No. 3, May-June 1966; pp 563-566

Abstract: Report on the discovery that the digest of beans is an excellent medium for culturing even the most fastidious pathogens which were always thought to grow only in media supplemented with blood or serum. Table. Manuscript received 5 September 1965.

1/1

- 34 -

DRAGHICI, D., dr.; CHERCIU, S., dr.

Diagnosis, prognosis and therapy of bacillary pericarditis with effusion. Med. intern., Bucur. 11 no. 12: 1869-1878 '59.

1. Lucrare efectuata in Sectia de medicina interna a Spitalului "Bucur".

(TUBERCULOSIS, CARDIOVASCULAR)

BERCOVICI, S., dr.; CHERCIU, S., dr.

Significance of fever in cirrhotics. Med. intern.(Bucur) 17
no.2:209-217 F'65.

1. Lucrare efectuata in Sectia medicala a Spitalului "Bucur",
Bucuresti.

CHERCIULESCU, F.

PARHON-STEFANESCU, Constanta, (Lecturer); FREDA, Elena; CHERCIULESCU, F.;
MEIU, Florida

Contributions to the study of the biological features of dementia
sensilis. Rumanian M. Rev. 2 no.1:42-45 Jan-Mar 58.

(PSYCHOSES, SENSILE, metab.
biol. factors)

CHERCIU-TURCU, Natalia, ing.; MIHAIL, Amelia, chim.

Laboratory determination of glutamic acid in malt brewer's
mass. Ind alim 14 no.9:370-373 S'63.

1. Fabrica de bere "Rahova".

26163

S/044/61/000/006/001/019

0111/0222

16.3400

AUTHOR: Cherdak, B.M.

TITLE: On the diminution of the order of a differential equation

PERIODICAL: Referativnyy zhurnal. Matematika, no.6, 1961, 26, abstract 6B 125. (Nauchn.sop kaferd matem., fiz.iyestestvozn. Odessk. gos.ped. in-t, 1959, 24, no.1, 16-18)

TEXT: The author proves the theorem: If the differential equation

$$y^{(n)} + a(t)y^{(n-1)} + b(t)y' + c(t)y = 0$$

satisfies the condition $b'(t) + a(t)b(t) - c(t) = 0$ then it is equivalent to the equation

$$z^{(n-1)} + b(t)z = ke^{-\int a(t)dt}.$$

The author also gives more general theorems on the diminution of the order of a differential equation, e.g.:

If the differential equation

$$y^{(n)} + \sum_{i=1}^n a_i(t)y^{(n-i)} = 0 \quad (n - \text{odd})$$

Card 1/2

26163

On the diminution of the order...

S/044/61/000/006/001/019
C111/G222

satisfies the conditions

$$a'_{n-k} + a_1 a_{n-k} - a_{n-k+1} = 0 \quad (k=1,3,5,\dots,n-2)$$

then it is equivalent to the equation

$$z^{n-1} + \sum_{i=1}^{\frac{n-1}{2}} a_{2i}(t) z^{n-2i-1} = k e^{-\int a_1(t) dt},$$

where k is an arbitrary constant.

[Abstracter's note: Complete translation.]

Card 2/2

CHERDAK, B.M.

Some properties of systems of differential equations. Uch.zap.
Ped.inst.Gerts. 238:149-156 '62. (MIRA 16:4)
(Differential equations)

16.5400

34769
S/140/62/000/001/010/011
C111/C444

AUTHOR: Cherdak, B. M.

TITLE: Some sufficient characteristics for the asymptotic stability of the solutions of a linear differential equation of second order

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, no. 1, 1962, 165-171

TEXT: Considered is the equation

$$y'' + p(x) y' + q(x) y = 0 \quad [0, +\infty) \quad (1)$$

respectively the system

$$\frac{dY}{dx} = A(x) Y \quad (2)$$

where

$$A(x) = \begin{pmatrix} 0 & 1 \\ -q(x) & -p(x) \end{pmatrix}, \quad Y(x) = \begin{Bmatrix} y(x) \\ y_1(x) \end{Bmatrix} \quad (2')$$

and $p(x)$, $q(x)$ are continuous for $x \geq 0$. By a transformation, the
Card 1/5

S/140/62/000/001/010/011

Some sufficient characteristics for ... C111/C444

coefficients of which are connected by a Riccati equation, the author reduces (2) to a system, the two equations of which satisfy the conditions of the following lemma: Let $\varphi(x)$ be a continuous negative function on $[x_0, +\infty]$; $|\varphi(x)| > \delta > 0$, $\delta = \text{const}$; then every solution $x \in [x_0, \infty]$

of $y' - \varphi(x)y = \Psi(x)$ is bounded on the positive semiaxis for every continuous and bounded $\Psi(x)$. This leads to

theorem I: The functions $p(x)$ and $q(x)$ which are continuous on $[x_0, +\infty)$ are assumed to satisfy the conditions

$$I(x) = q - \frac{p^2}{4} - \frac{p'}{2} \geq 0 \quad (3)$$

(c') there exists a function $\varphi(x)$, $|\varphi(x)| > \delta > 0$ on $x \in [x_0, \infty]$, continuously differentiable on $[x_0, +\infty)$ such that on $[x_0, +\infty)$ there is $\frac{p}{2} + \frac{q'}{4} > \delta > 0$ (ξ) there exists a continuous function $\theta(x)$ such that

$$\theta' + \theta^2 + I(x) \leq 0 \quad [x_0, +\infty).$$

Card 2/5

S/140/62/000/001/010/011

Some sufficient characteristics for ... C111/C444

Then the solutions of (1) are asymptotically stable for $x \rightarrow +\infty$.

By application of the same considerations and well-known results on the behavior of the solutions of a Riccati equation four further characteristics for the asymptotic stability are given, e. g.

Theorem III: If $p(x)$ and $q(x)$ satisfy the conditions e',

$$I(x) = q - \frac{p^2}{4} - \frac{p'}{2} \leq 0 \quad (14)$$

$$\int_{x_0}^{+\infty} I(x) dx < \infty \quad (15)$$

then all solutions of (1) are asymptotically stable for $x \rightarrow +\infty$.

In five more theorems one obtains characteristics for the existence of unbounded solutions by the same method, e. g.

Theorem VIII: Let $p(x)$, $q(x)$ satisfy (14), (15) and the condition (η): there exists a continuously differentiable function $\psi(x)$, $|\psi'(x)| > \delta > 0$

Card 3/5

S/140/62/000/001/010/011

Some sufficient characteristics for ... C111/C444

on $[x_0, +\infty)$ such that $\frac{p}{2} + \frac{q}{4} < -\delta < 0$, $\delta = \text{const} > 0$ being arbitrarily small. Then there exist unbounded solutions of (1) for $x \geq 0$.

Four examples are given, one proves especially the asymptotic stability of the solutions of

$$y'' + 2(k + \cos x) y' + \left[(k + \cos x)^2 - \sin x - \frac{1}{x} \right] y = 0, \quad (18)$$

with $1 \leq k \leq \sqrt{2}$, $1 > 1$, and of

$$y'' + 2xy' + \left(x^2 + 1 + \frac{1}{2x} \right) y = 0 \quad (19)$$

according to theorem III, respectively theorem I.

The author mentions Kondrat'yev, V. A., Leonov, Starzhinskiy, V. M.

There are 5 Soviet-bloc and 4 non-Soviet-bloc references. The 4 references to English language publications read as follows:

Card 4/5

S/140/62/000/001/010/011

Some sufficient characteristics for ... C111/C444

P. Hartman, A. Wintner, The asymptotic arcus variation of real linear differential equations of second order. Amer. J. Math., 70, 1, p. 1-10, 1948; P. Hartman. Unrestricted solution fields of almost-separable differential equations. Trans. Amer. Math. Soc., 63, 3, 1949; G. Birkhoff. Stability of spherical bubbles. Quart. Appl. Math., 13, no. 4, p. 451-453, 1956; Bellman, Stability theory of the solutions of differential equations. IIL, 1954. ✓

ASSOCIATION: Odesskiy gosudarstvennyy pedagogicheskiy institut im. K. D. Ushinskogo (Odessa Pedagogical State Institute im. K. D. Ushinskiy)

SUBMITTED: May 9, 1959

Card 5/5

VIDZHS, V.V., inzh.; CHERDAK, I.I., tekhnik

Improving the control circuit of the N-11 oscillograph. Elek.
sta. 29 no.8:86-88 Ag '58. (MIRA 11:11)
(Oscillograph)

SAVICHEV, O.P., inzh.; CHERDAK, M.D., inzh.

Device for wire winding of fastened rope ends. Bezop.truda v prom.
2 no.5:34 My '58. (MIRA 11:4)
(Rope)

25(7)

SOV/117-59-3-27/37

AUTHORS: Cherdak, M.D., and Savichev, O.P.

TITLE: The Changed Design of the Punch of the Automat "A-164" and "A-166" (Izmeneniye konstruktsii puansona avtomatov A-164 i A-166)

PERIODICAL: Mashinostroitel', 1959, Nr 3, pp 39-40 (USSR)

ABSTRACT: This is a short note describing and illustrating a new clipping die punch for the clipping presses named in the title, designed at the Odesskiy zavod sel'skokhozyaystvennogo mashinostroyeniya imeni Oktyabr'skoy revolyutsii (Odessa Agricultural Machine Building Plant imeni October Revolution). The punch (shown in drawing) consists of a permanent housing of carbon steel and an exchangeable insert of special steel ("EI 161") 1.17 kg in weight. The new design entails a high economy in expensive tool steel. It has facilitated the making of the die. There is 1 diagram.

Card 1/1

CHERDAK, M.

Following engineer Sheptalin's initiative. WFO no.9:25
S '59. (MIRA 13:1)

1. Chlen soveta pervichnoy organizatsii Nauchno-tekhnicheskogo
obshchestva sel'skokhozyaystvennogo zavoda im.Oktyabr'skoy
revolyutsii, Odessa.
(Odessa--Technological innovations)

CHERDAK, M.G.; STIKHOVNIN, A.M.; NEMIROVSKIY, E.I.; GUROV, P.G.

Conferences of managerial personnel of the main departments of
the Ministry. Stroil. i dor. mashinostr. 2 no.5:36-38 My '57.
(Road machinery) (MLRA 10:6)

CHERDAKLI, G.P., inzhener,

Using pressed wood. Masl.-shir.prom. 20 no.3:31-32 '55.
(MIRA 8:7)

1. Voronezhskiy Razmaslotrest
(Power presses) (Wood, Compressed)

KOSHELYUK, Ye.G.; NEDUZHKO, N.Ya., dorozhnyy master (stantsiya Zachepilovka, Stalinskoy dorogi); YEGOROV, M.I., dorozhnyy master (stantsiya Kakhovka, Stalinskoy dorogi); GUTYAN, A.M., inzh.; KOREN', P.T., putevoy obkhodchik (Vil'nyus); GRISHANKOV, V.G., putevoy obkhodchik (Vil'nyus); KURSHNEVA, M.N., dezhurnaya po pereyedu (Vil'nyus); BALAKIN, B.N.; PASECHNIK, A.I.; CHERDANTSEV, A. Ye., dorozhnyy master (stantsiya Verkh-Neyvinsk, Sverdlovskoy dorogi); STROCHKOV, A.A., inzh.

Letters to the editor. Put' i put.khoz. 4 no.2:40-42 F '60.
(MIRA 13'5)

1. Mekhanik puteizmeritel'noy teleshki, stantsiya Kovel', L'vovskoy dorogi (for Koshelyuk). 2. Zamestitel' nachal'nika distantсий puti, stantsiya Galich, Severnoy dorogi (for Balakin). 3. Inzhener distantсий, stantsiya Sambor, L'vovskoy dorogi (for Pasechnik).
(Railroads)

~~CHERDANTSEV, Gleb Nikanorovich~~, 1885-; NIKITIN, M.P., red.; TUTIKHIN, B.O., red.

[Economic geography of the U.S.S.R.; Soviet socialist republics: the Ukraine, Moldavia, White Russia, Lithuania, Latvia, Estonia, Georgia, Azerbaijan, Armenia, Kazakhstan, Uzbekistan, Kirghizistan, Tajikistan, and Turkmenistan] Ekonomichna geografiia SRSR; Radians'ki sotsialistychni respubliki: Ukrain's'ka, Moldavs'ka, Bilorus'ka, Lytovs'ka, Latvijs'ka, Estons'ka, Gruzins'ka, Azerbaidzhans'ka, Virmens'ka, Kazakhs'ka, Uzbets'ka, Kirgiz'ka, Tadzhits'ka, Turkmens'ka, Kyiv, Radians'ka shkola, 1961. 364 p. (MIRA 16:9)

(Russia—Economic conditions)

CHERDANTSEV, G.N. (Deceased)

Georgiy

See ILC

SOV/58-59-5-9919

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 26 (USSR)

AUTHOR: Cherdantsev, P.A.

TITLE: Relativistic Potential Function of the Magnetic Field and Its Use in Calculating the Density of an Equilibrium Charge in the Betatron ²¹ 79

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1957, Vol 87, pp 48 - 51

ABSTRACT: The author works out an expression for the relativistic magnetic potential and uses it to calculate the density of an equilibrium charge in the betatron. It is shown that the relativistic density is $[1 + (2eV/m_0c^2)]^{1/2}$ times less than the charge density calculated according to the non-relativistic formula.

A.P. Fateyev

Card 1/1

SOV/58-59-5-9918

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 6, p 26 (USSR)

AUTHOR: Cherdantsev, P.A.

TITLE: Allowance for the Proper Magnetic Field of an Equilibrium Beam in the Betatron^{2/}

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1957, Vol 87, pp 52 - 56

ABSTRACT: The author arrives at a relativistic potential function with allowance for the magnetic interaction of electrons in a beam. The charge densities calculated with the aid of this function are compared with the corresponding densities without allowance for the proper magnetic field of the beam. It is shown that the proper magnetic field of the beam plays an essential role at high electron velocities.

A.P. Fateyev



Card 1/1

S/139/59/000/05/002/026

E032/E114

AUTHORS: Rodimov, B.N., Cherdantsev, P.A., and Medvedeva, T.A.

TITLE: On the Production of Large Currents in a Betatron /9

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
1959, Nr 5, pp 6-13 (USSR)

ABSTRACT: From the theoretical point of view, the problem may be reduced to the solution of the following two problems: a) the choice of the best focussing field which, in the ideal case, could support the necessary number of electrons; b) the choice of a mechanism for capturing the electrons into the acceleration process which would be such that the current obtained in the chosen field would be sufficiently close to that required. In a previous paper (Ref 2) it was shown that the equilibrium charge which can be supported by the focussing magnetic field is given by Eq (1), where S is the cross-section of the region of maximum equilibrium charge (Fig 1), E_1 is the injection energy in ergs, R_0 is the radius of the equilibrium circle in cm, Q is the total charge in ESU, e is the electronic charge in ESU, and E_0 is the rest mass of an electron. Having chosen the injection energy, R_0 and S are chosen according to

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1/3



S/139/59/000/05/002/026

E032/E114

On the Production of Large Currents in a Betatron

the required value of Q . The choice of R_0 and S then reduces to the choice of the required field configuration. If R_0 and n_0 are chosen so as to satisfy the requirements given in Ref 1, the potential function V_{M0} is given by Eqs (2) and (3). With this value of V_{M0} the Z component of the magnetic field in the plane $Z = 0$ is given by Eq (4) and the field exponent n by Eq (5). V_{M0} is the non-relativistic potential function. The relative potential function V_p can be obtained from V_{M0} with the aid of Eq (6) and the relation between H_z and V_p is then given by Eq (7). Having determined the equipotential lines, the quantities S and Q are then determined from Eq (1). If Q differs too much from the required value the calculation is repeated with different R_0 and n_0 . The profile of the poles giving the field defined by Eq (3) is described by Eq (8) which is obtained from the relation given by Eq (9), where r_0 and z_0 are the coordinates of the point through which the pole line is to be drawn. The capture mechanism

Card
2/3

S/139/59/000/05/002/026
E032/E114

On the Production of Large Currents in a Betatron

ensuring the best use of the focussing field may be
the non-oscillatory mechanism described in Ref 3.
The present paper develops the theory of this
mechanism and describes its finer points.
There are 5 figures and 3 Soviet references.

ASSOCIATION: Tomskiy politekhnicheskiy institut imeni
S.M. Kirova
(Tomsk Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: December 27, 1958

Card 3/3

S/139/59/000/05/008/026

E032/E114

AUTHOR: Cherdantsev, P.A.TITLE: Effect of External Disturbances on the Density of the Space Charge in the Betatron ChamberPERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 5, pp 45-50 (USSR)

ABSTRACT: Rodimov (Ref 1) has derived a non-relativistic equation for the charge density in a focusing field. The present author has generalised this treatment to the relativistic case (Ref 2) and has derived an equation for the charge density, taking into account the magnetic field due to the beam. This equation is given by Eq (1) where ρ_0 is the equilibrium density and m is the electronic mass. Eq (1) may be reduced to the form given by Eq (2), using the substitutions indicated on page 45. The functions f must be estimated in order to solve Eq (2). In the general case, Eq (3) holds and Eqs (4) and (5) follow. The solution for a circular beam is of the form given by Eq (6), and hence η is given by Eq (7). If $\eta \ll 1$ then ρ is given by Eq (8) where the constants are determined by the initial condition. For a free beam having a circular cross-

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S/139/59/000/05/008/026

E032/E114

Effect of External Disturbances on the Density of the Space Charge
in the Betatron Chamber

section, the dependence of the density on time is given by Eq (9). The equilibrium density which enters into Eq (1) can be determined from the Poisson equation, and the potential V_p , which enters into this equation, must satisfy the equation at the bottom of page 46. At the centre of the beam $\partial U/\partial r = \partial U/\partial z = 0$, and hence ρ_0 is given by Eq (10). The analysis is then continued to include corrections for the static non-uniformity in the magnetic field, scattering on residual gas, ionization of the gas by the beam, and injection conditions. All these corrections can only be estimated by successive approximations.

Card
2/2

There are 4 Soviet references.

ASSOCIATION: Tomskiy politekhnicheskiy institut im. S.M. Kirova
(Tomsk Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: December 27, 1958



21,2100

69171

S/139/59/000/06/032/034
E032/E114

AUTHOR: Cherdantsev, P.A.

TITLE: Theory of the Capture of Electrons into the Acceleration Process in a Betatron

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 6, pp 177-178 (USSR)

ABSTRACT: It is well known that single electron theories of injection have not led to even a qualitative explanation of the capture of electrons into the acceleration process in a betatron. In spite of a number of papers concerned with this problem which have appeared in recent years (Refs 1-5), there is so far no satisfactory mathematical theory of injection. The present note is an attempt to produce such a theory, including some of the results of previous theories. If the charge density in the chamber at a time t is denoted by ρ then the beam of electrons leaving the gun will be of a definite form depending on the values of the parameters

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$\gamma = \sqrt{1 - n_c - \alpha \rho}$, $\xi = J/E^{3/2}$ and C ,
where J is the current, E is the energy, n_c is the

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in a Betatron

magnetic field fall-off exponent at the radius R_c , C is the initial condition for the electrons, and is a known function of time, and $\alpha = 2 e/m\omega^2$. It is assumed that only those electrons are captured for which the oscillation amplitudes are damped. The equation for γ is taken to be of the form given by Eq (1) and the solution of this equation is given by Eq (2). λ depends only on time and the parameter ξ . The total density at the end of the injection process is given by Eq (3), where the integration is carried out over an infinite interval since λ is finite only during the injection time T . A qualitative investigation of the integral in Eq (3) suggests that it is of the form given by Eq (4). The intensity of the radiation, which is proportional to the amount of captured charge, is then given by Eq (5) where the coefficients α_0 , β are complicated functions of the magnetic field, the form of the injection pulse, and the phase of the latter. The quantity $(1 - n_c)E$ is proportional to the limiting

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charge density. Eq (3) can therefore be written down in the form given by Eq (6). This ratio is a measure of the efficiency of the capture process and depends only on ξ and the injection conditions. $(1 - n_c)$ also depends on ξ . This dependence is a consequence of the fact that the nonhomogeneous Hill equation solution has a constant term which is independent of time. The presence of this term leads to the displacement of the centre of oscillations of electrons. The requirement that this displacement should not lead to the electrons leaving the chamber, leads to the dependence of $(1 - n_c)$ on ξ . It is possible to derive the relation given by Eq (7) which shows the dependence of $(1 - n_c)$ on ξ , k being small. The ratio I/E is then given by the equation at the top of p 178. This equation is a function of ξ only and can easily be verified experimentally by determining the dependence of I on the injection current J for different values of the injection energy E .

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It can easily be shown that the theoretical maximum of I/E corresponds to a definite ξ_m , i.e. to a definite $J/E^{3/2} = \xi_m$. This result has been verified experimentally by Aspirant O.V. Sokolov (Fig 1). There are 1 figure and 5 references, of which 1 is English and 4 are Soviet.

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S/058/63/000/001/018/120
A062/A101

AUTHOR: Cherdantsev, P. A.

TITLE: Theory of electron capture into acceleration in a betatron

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 41, abstract 1A386
(In collection: "Elektron. uskoriteli." Tomsk, Tomskiy un-t, 1961, 58 - 68)

TEXT: The problem of the motion of electrons in a betatron chamber in the presence of a space charge is examined (RZh Fiz., 1960, no. 9, 22217). It is shown that the capture of electrons into acceleration conditions is determined by the resonant damping of their oscillations on the non-uniformity (in the azimuthal distribution of the space charge) produced by the beam. ✓

A. Fateyev

[Abstracter's note: Complete translation]

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CHERDANTSEV, P.A.

Magnetic field with best focusing properties. Izv. TPI
122:54-60 '62. (MIRA 17:9)

CHERDANTSEV, P. A.

"Influences of Collective Excitation on the Density of States of Compound Nuclei."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

CHEERDANTSEV, P.A.

Angular distribution of slow neutrons from the (γ, n)-reaction on deformed nuclei. Izv. vys. uchet. zav.; fiz. 8 no.3:160-162 '65.
(MIRA 18:9)

1. Tomskiy politekhnicheskii institut imeni S.M.Kirova.

CHERDANTSEV, P.A.

Motion of alpha-particle associations in heavy nuclei.

Izv. AN SSSR. Ser. fiz. 29 no.12:2271-2272 D '65.

(MIRA 19:1)

11-301-56 EMT(m)/EMP(t)/EMI IJP(c) JG/WW/JD

ACC NR: AP6019630

(A,N)

SOURCE CODE: UR/0048/66/030/002/0341/0342

AUTHOR: Cherdantsev, P.A.

ORG: none

39B

TITLE: Concerning nuclear fission /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, hold at Minsk 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 341-342

TOPIC TAGS: nuclear fission, nuclear model, nuclear shell model, mathematic method

ABSTRACT: The authors present a simple ¹⁹model of nuclear fission in which shell-model, single-particle, and collective effects are taken simultaneously into account. In the presented model the nucleus undergoing fission is treated as two intersecting spherical fragments, and the energies of the eigenstates of a nucleon in the field of the intersecting fragments are employed to construct a potential energy function for the collective motions. The energy barrier against fission of ²³⁸U was calculated as a function of the distance between the centers of the two intersecting spherical fragments for different values of the asymmetry parameter. The barrier against symmetric and highly asymmetric fission was found to be higher than that against moderately asymmetric fission. Orig. art. has: 7 formulas and 2 figures.

SUB CODE: 20

SUBM DATE: 00

ORIG. REF: 000

OTH REF: 003

Card 1/1 hs

L 09370-67 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6023410

SOURCE CODE: UR/0139/66/000/003/0035/0039

AUTHOR: Cherdantsev, P. A.; Kozlova, G. A.

ORG: Tomsk Polytechnic Institute im. S. N. Kirov (Tomskiy politekhnicheskiy institut)

TITLE: Characteristics of giant resonance of silicon isotopes

SOURCE: IVUZ. Fizika, no. 3, 1966, 35-39

TOPIC TAGS: silicon, resonance absorption, wave function, dipole moment, nuclear energy level

ABSTRACT: The authors calculate the giant-resonance characteristics of Si^{28} and Si^{30} using the model developed for this purpose by V. V. Balashov (ZhETF v. 42, no. 1, 1962). The wave function describing the collective state of the nucleus is constructed by applying the dipole moment operator to the ground-state function, and the zeroth approximation of the single-particle levels is determined directly from experimental data on the levels of neighboring nuclei. The energy of the maximum of the giant resonance and the energy width of the resonance, and the integral absorption cross section are all calculated by means of Balashov's procedure. Level schemes are presented for Si^{28} and Si^{30} and tables of the configuration and the neutron and the proton excitation energies are given for the first five levels. The corresponding transition energies are calculated. The calculated characteristics of the giant resonance for photodisintegration, carried out for Si^{28} turned out to agree with experiment. There are no experimental data to compare for Si^{30} . Orig. art. has: 2 figures, 6 formulas, and 6 tables.

SUB CODE: 20/ SUBM DATE: 24Jul64/ ORIG REF: 003/ OTH REF: 004

KOPYLOV, B.F.; LEBEDEV, P.A.; CHERDANTSEVA, M.V. (Leningrad)

"Small-base semiconductor film transformers as applied to the investigation of dynamic parameters of mechanisms".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

KOCHERGIN, V.P.; CHERDANTSEVA, N.N.; PLOTNIKOVA, N.I.

Solution of cold-rolled tin in fused chlorides of tin, zinc, and
alkali metals. Izv.vys.ucheb.zav.; khim.i khim.tekh. 2 no.5:
734-740 '59. (MIRA 13:8)

1. Ural'skiy gosudarstvennyy universitet, kafedra neorganicheskoy
khimii.

(Tin)

(Chlorides)